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| | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|
| 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| GAATTCCACCATGCAGCTCTCCTCTTGTGCTGGTCTTCAGCCCTCAGGGGCCCTCCCTCACGGCCACCACCCCCGGAGATGAAGAAGAGA | | | | | | | | | |
| M Q L F L L C L V L L S P Q G A S L H R H H P R E M K K R | | | | | | | | | |
| 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 |
| GTCGAGGACCTCCATGTAGGTGCCACGGTGGCCCCAGCAGCAAGGGACTTACCTCGACCTACAGGGCTTGGCTCCGCTGCCAGGCCAGA | | | | | | | | | |
| V E D L H V G A T V A P S S R R D F T F D L Y R V L A S A A P S Q N | | | | | | | | | |
| 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 | 290 | 300 |
| ATATCTCTCTCCCTGTGAGCATCTCCATGAGCCTGGCATGCTCTCCCTGGGGCTGGGTCAAGCACAAAGATGCAGATCTGGAGGGCTGGGCCT | | | | | | | | | |
| I F F S P V S I S M S L A M L S L G A G S S T K M Q I L E G L G L | | | | | | | | | |
| 310 | 320 | 330 | 340 | 350 | 360 | 370 | 380 | 390 | 400 |
| CAACCTCCAGAAAAGCTCAGAGGAGGAGCTCAGACAGGGTTTCAGCAGCTCCTCAGGAACCTAACCAAGGCCAGAGATGGCTCCAGCTGAGCCTCGGC | | | | | | | | | |
| N L Q K S S E E E L H R G F Q Q L L Q E L N Q P R D G F Q L S L G | | | | | | | | | |
| 410 | 420 | 430 | 440 | 450 | 460 | 470 | 480 | 490 | 500 |
| AATGCCCTTTCACCGACCTGGTAGACCTGCAGGACACCTCGTAAGTGCCATGAAGACGCTGTACCTGGAGACACTTCCCCACCAACTTAGGG | | | | | | | | | |
| N A L F T D L V V D L Q D T F V S A M K T L Y L A D T F P T N F R D | | | | | | | | | |
| 510 | 520 | 530 | 540 | 550 | 560 | 570 | 580 | 590 | 600 |
| ACTCTGCAGGGCCATGAAGCAGATCAATGATTATGTGGCAAAGCAAACGAAGGGCAAGATTGTGGACTTGCTTAAGAACCTCGATAGCAATGCCGT | | | | | | | | | |
| S A G A M K Q I N D Y V A K Q T K G K I V D L L K N L D S N A V V | | | | | | | | | |
| 610 | 620 | 630 | 640 | 650 | 660 | 670 | 680 | 690 | 700 |
| GATCATGGTGAATTACATCTCTTAAAGCTAAGTGGAGACAAGCTCAACCACAAAGGCACCAAGAGCAAGACTTCTACGTGACCTCGGAGACTGTG | | | | | | | | | |
| I M V N Y I F F K A K W E T S F N H K G T Q E Q D F Y V T S E T V | | | | | | | | | |
| 710 | 720 | 730 | 740 | 750 | 760 | 770 | 780 | 790 | 800 |
| GTGCGGGTACCCATGATGAGCCGCGAGGATCAGTATCACTACCTCTGGACCGAACCTCTCCTGCAGGGTGGGGGTCCCTACCAAGGCAATGCCA | | | | | | | | | |
| V R V P M M S R E D Q Y H Y L L D R N L S C R V V G V P Y Q G N A T | | | | | | | | | |
| 810 | 820 | 830 | 840 | 850 | 860 | 870 | 880 | 890 | 900 |
| CGGCTTGTTCATTCTCCCCAGTGAGGGAAAGATGCAGCAGGTGGAGAATGGACTGAGTGAGAAAAGCTGAGGAAGTGGCTTAAGATGTTCAAAAGAG | | | | | | | | | |
| A L F I L P S E G K M Q Q V E N G L S E K T L R K W L K M F K K R | | | | | | | | | |
| 910 | 920 | 930 | 940 | 950 | 960 | 970 | 980 | 990 | 1000 |
| GCAGCTCGAGCTTACCTCCCAAATTCTCCATTGAGGGCTCTATCAGCTGGAGAAAGTCTCCCTGGGGATCAGTAACGTCTCACCTCCCAT | | | | | | | | | |
| Q L E L Y L P K F S I E G S Y Q L E K V L P S L G I S N V F T S H | | | | | | | | | |
| 1010 | 1020 | 1030 | 1040 | 1050 | 1060 | 1070 | 1080 | 1090 | 1100 |
| GCTGATCTGTCGGCATCAGCAACCACTCAAATATCCAGGTGCTGAGATGGTCACAAAGCTGTGGAGGTGGACGAGTCGGGAACCAGAGCAGCGG | | | | | | | | | |
| A D L S G I S N H S N I Q V S E M V H K A V V E V D E S G T R A A A | | | | | | | | | |
| 1110 | 1120 | 1130 | 1140 | 1150 | 1160 | 1170 | 1180 | 1190 | 1200 |
| CAGCCACGGGACAATATTCACTTCAGGTGGCCCGCTGAACCTCAGAGGCTAGTGTCAACAGGCCCTTCTGATGTTCAACAGGCCCTTCTGATGTTCAACAGGCC | | | | | | | | | |
| A T G T I F T F R S A R L N S Q R L V F N R P F L M F I V D N N I | | | | | | | | | |
| 1210 | 1220 | 1230 | 1240 | | | | | | |
| CCTCTTCTGGCAAAGTGAACCGCCCTGAGGATCC | | | | | | | | | |
| L F L G K V N R P * | | | | | | | | | |

FIG. 1

| | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|
| 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| <u>GAATTCCACCATGCAGGCTTCCTCCTTGTGCCCTGCTCTCAGGCCCTCAGGGGCCCTCCCTCACCGCCACCACCCCCGGAGATGAAGAAGAGA</u> | | | | | | | | | |
| M | Q | L | F | L | L | C | L | V | L |
| 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 |
| GTCGAGGACCTCCATGTAGGTGCCACGGTGGCCCCAGCAGCAAGGGACTTACCTTCACGGCTTCCGCTGCCAGGCCAGA | | | | | | | | | |
| V | E | D | L | H | V | G | A | T | V |
| 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 | 290 | 300 |
| ATATCTCTCTCCCTGTAGCATCTCCATGAGCCTGGCCATGCTCTCCGGGGCTGGGTCCAGCACAAAGATGCAGATCTGGAGGGCTGGGC | | | | | | | | | |
| I | F | F | S | P | V | S | I | S | M |
| 310 | 320 | 330 | 340 | 350 | 360 | 370 | 380 | 390 | 400 |
| CAACCTCCAGAAAAGCTCAGAGGAGGAGCTCACAGAGGCTTCAGCAGCTCCTCAGGAACCTAACCCAGCCCAGAGATGGCTCCAGCTGAGCCTCGG | | | | | | | | | |
| N | L | Q | K | S | S | E | E | L | H |
| 410 | 420 | 430 | 440 | 450 | 460 | 470 | 480 | 490 | 500 |
| AATGCCCTTTCACCGACCTGGTAGACCTGCAGGACACCTTCGTAAGTGCCATGAAGACGCTGTACCTGGAGACACTTTCCCCACCAACTTAGGG | | | | | | | | | |
| N | A | L | F | T | D | L | V | V | D |
| 510 | 520 | 530 | 540 | 550 | 560 | 570 | 580 | 590 | 600 |
| ACTCTGCAGGGCCATGAAGCAGATCAATGATTATGTGGCAAAGCAAACGAAGGGCAAGATTGTGGACTTGCTTAAGAACCTCGATAGCAATGCGGTCGT | | | | | | | | | |
| S | A | G | A | M | K | Q | I | N | D |
| 610 | 620 | 630 | 640 | 650 | 660 | 670 | 680 | 690 | 700 |
| GATCATGGTGAATTACATCTCTTAAAGCTAAGTGGAGACAAGCTCAACCACAAAGGCACCCAAGAGCAAGACTTCTACGTGACCTCGGAGACTGTG | | | | | | | | | |
| I | M | V | N | Y | I | F | F | K | A |
| 710 | 720 | 730 | 740 | 750 | 760 | 770 | 780 | 790 | 800 |
| GTGCGGGTACCCATGATGAGCCGCGAGGATCAGTATCACTACCTCTGGACCGAACCTCTCCTGCAGGGTGGGGGTCCCTACCAAGGCAATGCCA | | | | | | | | | |
| V | R | V | P | M | M | S | R | E | D |
| 810 | 820 | 830 | 840 | 850 | 860 | 870 | 880 | 890 | 900 |
| CGGCTTGTTCATTCTCCCCAGTGAGGGAAAGATGCAGCAGGTGGAGAATGGACTGAGTGAGAAAAGCTGAGGAAGTGGCTTAAGATGTTCAAAAGAG | | | | | | | | | |
| A | L | F | I | L | P | S | E | G | K |
| 910 | 920 | 930 | 940 | 950 | 960 | 970 | 980 | 990 | 1000 |
| GCAGCTCGAGCTTACCTTCCCAAATTCTCCATTGAGGGCTCTATCAGCTGGAGAAAGCTCTCCAGTCTGGGGATCAGTAACGTCTCACCTCCCAT | | | | | | | | | |
| Q | L | E | L | Y | L | P | K | F | S |
| 1010 | 1020 | 1030 | 1040 | 1050 | 1060 | 1070 | 1080 | 1090 | 1100 |
| GCTGATCTGTCGGCATCAGCAACCACTCAAATATCCAGGTGTCTGAGATGGTCACAAAGCTGTGGAGGTGGACGAGTCGGAACCCAGAGCAGCGG | | | | | | | | | |
| A | D | L | S | G | I | S | N | H | S |
| 1110 | 1120 | 1130 | 1140 | 1150 | 1160 | 1170 | 1180 | 1190 | 1200 |
| CAGCCACGGGACAATATTCACTTCAGGTGGCCCGCTGAACCTCTCAGAGGCTAGTGTCAACAGGCCCTTCTGATGTTCAACAGGACGATGACAAGTGA | | | | | | | | | |
| A | T | G | T | I | F | T | R | S | A |
| 1210 | 1220 | 1230 | 1240 | 1250 | 1260 | | | | |
| CCTCTCTGGCAAAGTGAACCGCCCGGATCCGACTACAAGGACGACGATGACAAGTGA | | | | | | | | | |
| L | F | L | G | K | V | N | R | P | G |
| S D Y K D D D D K * | | | | | | | | | |

FIG. 2

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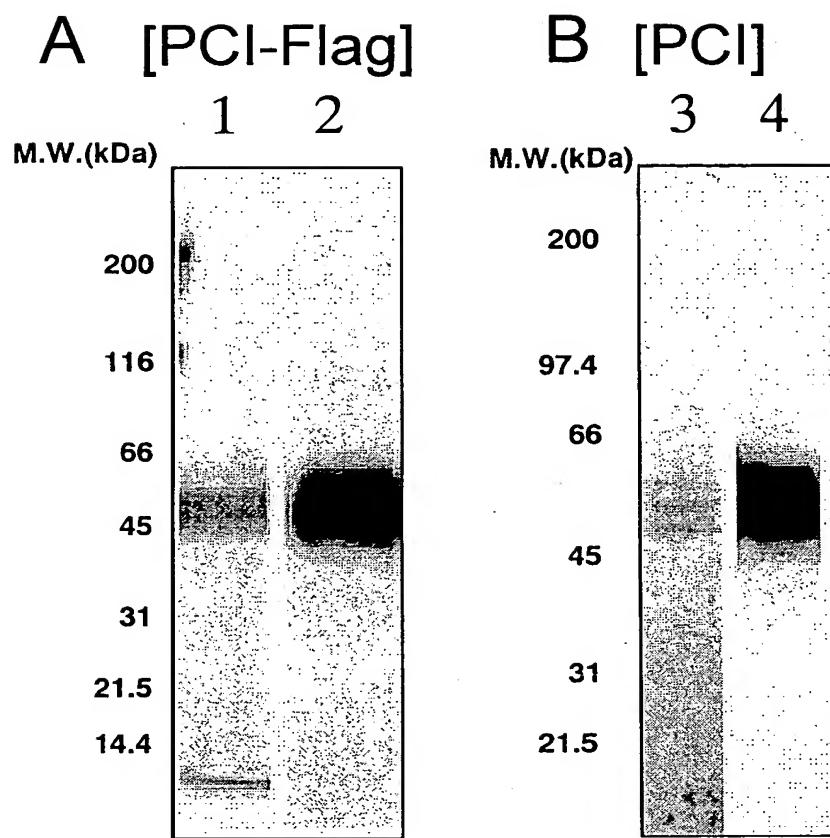


FIG. 3

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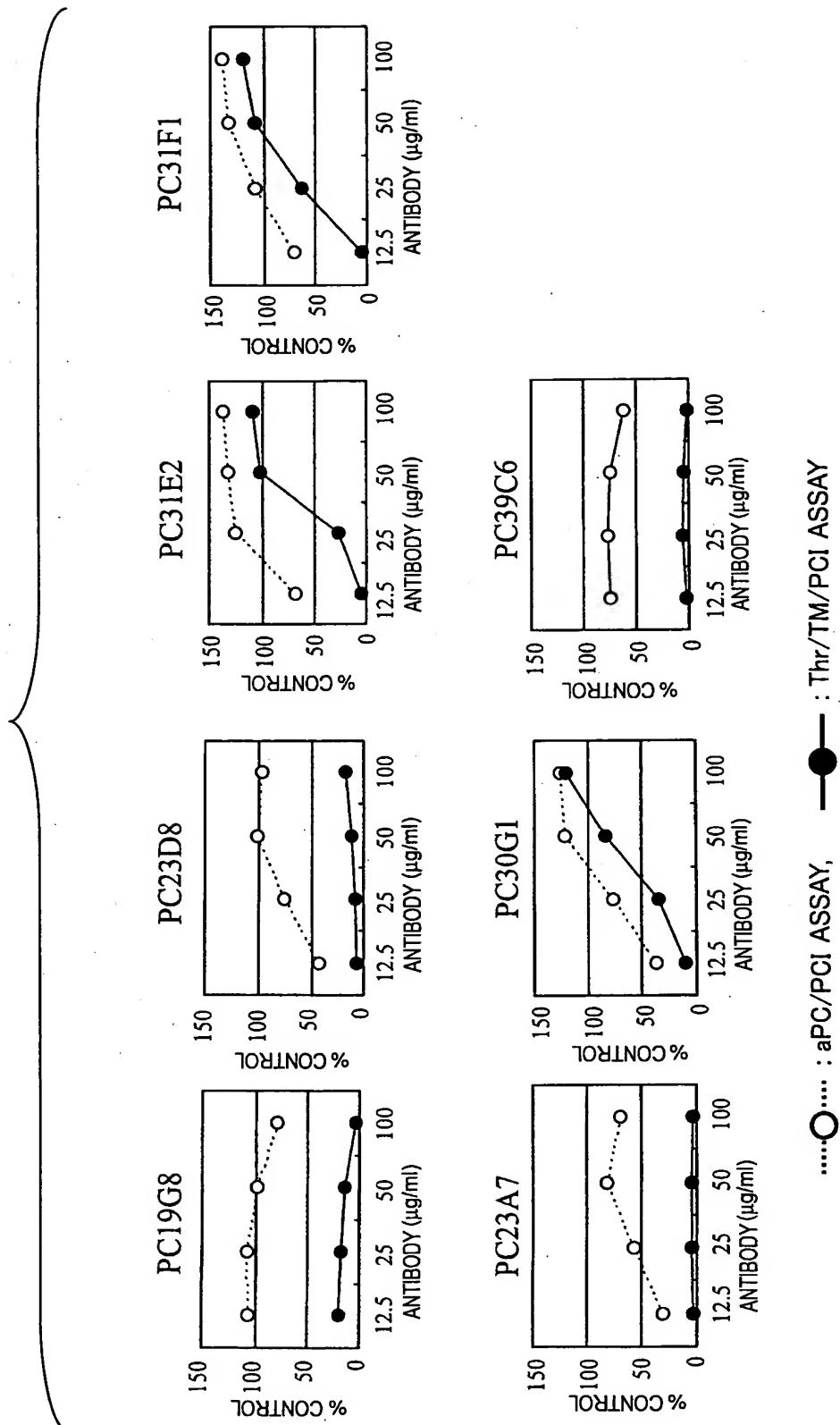


FIG. 4

| | PC23D8 | EVQLQQSGAELVKPGASVQLSCTASGF DIK | DTFMH | WV KQRPEQGLEWIG | CDR1 | CDR2 |
|--------|-----------------------------------|-----------------------------------|-----------------|--------------------|------|------|
| PC19G8 | EVQLQQSGAELVKPGASVQLSCTASGF DIK | DTFMH | WV KQRPEQGLEWIG | RIDYVNGNTKYDPKF QG | | |
| PC23A7 | EVQLQQSGAELVKPGASVQLSCTASGF DIK | DTFMH | WV KQRPEQGLEWIG | RIDLWNVNTKYDPNF QD | | |
| PC39C6 | EVQLQQSGAELVKPGASVQLSCTASGF DIK | DYYIH | WV KQRPEQGLEWIG | RIDLEKGNIIYDPKF QG | | |
| PC31F1 | EVKLLESGGGLVQPGGSLKLSCAASGF DFS | RYWMS | WVRQAPGKGLEWIG | EINPDSSTINYTPSLKD | | |
| PC30G1 | EVKLLESGGGLVQPGGSLKLSCAASGF DFS | RYWMS | WVRQAPGKGLEWIG | EINPDSSTITYTSSLKD | | |
| PC31E2 | QVQLQQSGAELVKPGASVQLSCKAFGYTFT | TYP IE | WMKQNHGKSLIEWIG | KFHPDNDTNYNEKF KG | | |
| | PC23D8 | KATITGDTSSNTAYLQLSSLTSED TAVYYCAR | GGYDVREFAY | WGQGTLVTVSA | CDR3 | |
| PC19G8 | KATITGDTSSNTAYLQLSSLTSED TAVYYCAR | GGYDVREFAY | WGQGTLVTVSA | (SEQ ID NO : 8) | | |
| PC23A7 | RATITADTSSNTAYLQLTSLTSED TAVYYCAR | GGYDVREFAY | WGQGTLVTVSA | (SEQ ID NO : 9) | | |
| PC39C6 | KDNITADTSSNTAYLQLSSLTSED TAVYYCAR | GGYDVPSFAY | WGQGTLVTVSA | (SEQ ID NO : 10) | | |
| PC31F1 | KFISRDNAKKTTLYLQMNKVRSEDTALYYCAR | FFYYGTPDY | WGQGTTLVSSA | (SEQ ID NO : 11) | | |
| PC30G1 | RFISRDNAKNTVYLQMNSKVRSEDTALYYCAR | LFYYGTPDY | WGQGTTLVSSA | (SEQ ID NO : 12) | | |
| PC31E2 | KAKLTVEKSSTVYLELSRLTSDSAAVYYCAR | GHDYDYGM DY | WGQGTSVTVSSA | (SEQ ID NO : 13) | | |
| | | | | (SEQ ID NO : 14) | | |

FIG. 5

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| CDR1 | | CDR2 | | CDR3 | |
|--------|--------------------------------|----------------|------------------|------------------|--|
| PC23D8 | QIVLTQSPAIMSASPGEKVTITC | SATSSLIYMH | WFQQKPGSSPELWIY | STSNLASGVPA | |
| PC19G8 | QIVLTQSPAIMSASPGEKVTITC | SATSSLIYMH | WFQQKPGSSPELWIY | STSNLASGVPA | |
| PC23A7 | QIVLTQSPAIMSASPGEKVTITC | SATSSLIYMH | WFQQKPGTSPKLWIY | STSNLASGVPA | |
| PC39C6 | QIVLTQSPAIMSASPGEKVTITC | SASSSVSYMH | WFQQKPGTSPKLWIY | STSNLASGVPA | |
| PC31F1 | DIVMTQSHKFMMSAVGDRVSI | KASQDVIVAVA | WYQQKPGQSPELLIY | SASYRYTGVPD | |
| PC30G1 | DIVMTQSHKFMSTSVDGDRVSI | KASQDVIKAVA | WYQQKPGQSPKLLIY | STSYYRTGVPD | |
| PC31E2 | DIVLTQSPASLAVSLGQRATISC | KASQSVDYDGSYLN | WYQQKPGQOPPKLLIY | GASNLESGTPA | |
| PC23D8 | RFSGSGSGTYSLTISRMEAEDAATYYCQQ | RSSYPFT | FGSGTKLEIK | (SEQ ID NO : 15) | |
| PC19G8 | RFSGSGSGTYSLTISRMEAEDAATYYCQQ | RSSYPFT | FGSGTKLEIK | (SEQ ID NO : 16) | |
| PC23A7 | RFSGSGSGTYSLTISRMEAEDAATYYCQQ | RSSYPFT | FGSGTKLEIK | (SEQ ID NO : 17) | |
| PC39C6 | RFSGSGSGTYSLTISRMEAEDAATYYCQQ | RSSYPFT | FGSGTKLEIK | (SEQ ID NO : 18) | |
| PC31F1 | RFTGSGSGTDFTFTISSVQAEDIAYYYCQQ | HYSSPPWT | FGGG GTKLEIK | (SEQ ID NO : 19) | |
| PC30G1 | RFSGSGSGTDFTFTISSVQAEDIAYYYCQQ | HYSSPPWT | FGGG GTKLEIK | (SEQ ID NO : 20) | |
| PC31E2 | RFSGSGSGTDFTLDIHVEEEADAATYYCQQ | SNEDPPT | FGGG GTKLEIK | (SEQ ID NO : 21) | |

FIG. 6